

thin, subpellucid, shining, pale olive-green, finely obliquely striated throughout and decussated above with very minute concentric rugose striæ: spire conical, apex obtuse; whorls 6, nearly flat, the last not descending in front, inflated below; aperture diagonal, large, angularly elliptic; peristome thin, simple; columellar margin slightly reflexed over the umbilicus.

Diam. maj. 33, min. 27, alt. 24 mill.

Hab. Feneriffa Islands, North-west Madagascar (*Coll. Sir D. Barclay*).

HELIX EYREI, n. sp. (Plate XLVII. figs. 10-12.)

Shell widely umbilicated, subplanorbular, rather thin, obliquely striated, and under the lens minutely granulated, light brown, pale below; spire flattened; whorls 5, a little convex, the last rounded and slightly descending; aperture oblique, lunate; peristome flesh-coloured, margins approximating, thickened, and slightly expanded.

Diam. maj. 17, min. $14\frac{1}{2}$, alt. $6\frac{1}{2}$ mill.

Hab. Shores of Lake Eyre, Central Australia.

This is another species of the peculiar discoidal group of *Helices* (*Angasella*, A. Ad.) from the arid regions of Central Australia, to which *H. cyrtopleura*, Pfr. and *H. phillipsiana*, Ang., also belong.

EXPLANATION OF PLATE XLVII.

Figs. 1-3. *Helix malantensis*.

4, 5. — *comriei*.

6, 7. — *robillardii*.

8, 9. — *feneriffensis*.

10-12. — *eyrei*.

7. Notes on the Birds of the Navigators' and Friendly Islands, with some Additions to the Ornithology of Fiji.
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Recent visits to the Navigators' and Friendly archipelagos having enabled me to extend my knowledge of the avifauna of these two groups of islands, so intimately connected with the ornithology of Fiji, I offer the accompanying remarks for publication in the Proceedings of the Society as a sequel to my 'Notes on Fijian Birds' (P. Z. S. 1875, p. 423).

I will take first in order the Navigators', and give a list of the known species, commenting on them as I proceed.

1. *STRIX DELICATULA*, Gould.

This Australian White Owl is common throughout the islands, and is the only Raptorial bird known on them. I frequently put it up from among the cotton-bushes planted in rows between the cocoa-

nut trees; and it seemed not to be affected by the glare of the daylight. It feeds on lizards, beetles, &c.

2. CORIPHILUS FRINGILLACEUS, Gm.

Abundant in the early morning before the sun gets hot, on the flowers of the cocoa-nut trees, sipping the sweetened dew caught in the freshly opened spathes. When this is dried up by the heat, they are off to the forest, and feed on some of the many-petaled flowers of the tall trees. During the time that the "coral trees" (*Erythrina*) are in flower, they may be shot in dozens, as these trees form their favourite resort.

I have procured specimens of this lovely little Parrakeet from the island of Futuna; and they are very abundant on Vavaw, the most northern of the Friendly Islands.

3. EUDYNAMIS TAITENSIS, Sparrm.

I saw a single specimen of this Cuckoo in December, and was informed by a gentleman collecting for Messrs. Godeffroy, of Hamburg, that they are not uncommon.

4. HALCYON PEALEI, F. & H.,

is confined to the island of Tatuila, which, unfortunately, I was unable to visit. In Samoa it is replaced by

5. HALCYON RECURVIROSTRIS, Lafr.

which is tolerably common in the more open parts of the forest, in the clearings and native gardens. It usually sits perched on a dead, protruding branch, on the look-out for insects (*Gryllæ*), after which I have seen it dart like a Flycatcher, hovering in the air and returning to its post of observation. It also darts at *Cicadæ* sitting on the trunks and branches of trees, off which it seizes them with unerring aim.

6. COLLOCALIA SPODIOPYGIA, Peale.

One of the commonest birds in Samoa, skimming about the open country, or amid the cocoa-nut groves, with equal facility.

7. MYZOMELA NIGRIVENTRIS, Peale.

I did not find this lovely little "Sugar-bird" at all plentiful; those I saw were chiefly on the flowers of the Banana.

8. PTILOTIS CARUNCULATA (Gm.).

Drs. Finsch and Hartlaub are, I think, in error in figuring this bird with a *white* iris, and describing it "*iride alba*." I have now shot a fair number in Loma Loma, in Samoa, in Tonga Tābu and Vavaw; but in not one was there the least approach to a *white iris*; brown, or ashy brown was the colour in all of them. It is very common everywhere; and in the early morning, before sunrise, when the country rings with its loud notes, as a friend observed, "it is the nearest approach of any to a song-bird! he is trying to be a

thrush!" It clings in any position to the flowers that conceal its favourite food (small insects), and is very pugnacious, driving away from the feast any bird that attempts to share it.

9. LEPTORNIS SAMOËNSIS, Hombr.

Found in small flocks in the forests of Samoa, seldom approaching the coast, where, however, I was fortunate enough to meet with it and secure nice specimens. It has a loud flute-like call, and clambers about the topmost branches of the tallest forest trees. When held head downwards, a plentiful discharge of honey escapes from the bill, and the stomachs of those dissected contained insects, bits of leaves, &c.

10. TATARE LONGIROSTRIS (Gm.).

I sought for this bird in vain, both in Samoa and Tonga; and all my inquiries proved equally fruitless; no one knew of such a bird. The Rev. Mr. Whitmee also, who has devoted considerable attention to the zoology of the Navigators' Islands, doubts its being an inhabitant of them. It may have become extinct, like a species I shall have to allude to from Tonga; but the natives have no name for it.

11. PETROICA PUSILLA, Peale.

This pretty little "Robin" is not very uncommon in the woods in Samoa, and is generally found in pairs, ♂ and ♀, or with the addition of their young family. It is bold and fearless, and admits of a close approach, being usually perched on the undergrowth of young trees. Feeds on small insects, ants, &c.

12. TURDUS VANICORENSIS, Quoy.

This "Blackbird" might be easily mistaken for our English friend, both when hopping about the ground, probing for worms, or when speeding through the coppice, uttering its shrill metallic cry of alarm. Several times, when darting from some thick bush, it flew down the roads cut through the cocoa-nut plantation. When I saw it most abundantly, I could not help fancying myself again for the moment in some Staffordshire lane, where, as a boy, I chased them with loaded ash sticks!

I saw eggs in Mr. Whitmee's possession closely resembling those of the English bird, and gathered from him that the nest was also similar.

The acquisition of this bird revealed to me the fact that our Fiji bird is quite distinct, and of a new species, which I have therefore described under the title of *Turdus vitiensis*, Ann. N. II. 4 ser. vol. xvii. p. 305: and since I returned, the same kind friend to whom I am indebted for it has found another species in Taviuni, which I have had much pleasure in naming after him, *T. tempesti* (*antea*, p. 420). This, with the Kandavu bird (*T. bicolor*, Ibis, 1876, p. 153), makes three species of this genus peculiar to Fiji; and I doubt not others yet remain to be found in the centre of the large island Viti Levu.

13. RHIPIDURA NEBULOSA, Peale.

Not rare in the forest, and about the cotton-bushes on the plantation before named. It did not spread its tail, or make such noisy demonstrations as the Fijian *R. albicollis*, perhaps because my visit to its haunts was not made during the breeding-season. I was informed that the nest was of the true *Rhipidura* type, with a long pendent base.

A fine *Rhipidura* has been added to the avifauna of Fiji, procured at Kandavu, by my old servant Charles Pearce. Mr. Ramsay, of the Sydney Museum, alludes to it as *R. personata*.

14. MYIAGRA ALBIVENTRIS, Peale.

This pretty little flycatcher takes the place, in Samoa, of the Fijian *M. castaneiventris*, but is not so plentiful; nor does it so much affect native villages and gardens, being more restricted to the forest. The sexes, unlike ours, are hardly distinguishable. A young bird (still tended by its parent) shot by me on the 18th December, almost exactly resembles the young of *M. castaneiventris* shot in October, being dark slate-coloured above, with a dirty buff throat, and whitish abdomen and vent.

This species feeds exclusively on insects, which it seeks on the leaves or on the wing, the snap of its bill being audible to a considerable distance.

15. PACHYCEPHALA FLAVIFRONS, Peale.

If the description given by Finsch and Hartlaub is correct, neither Mr. Whitmee nor myself have succeeded in identifying this species. The only *Pachycephala* known to us has certainly not got "*guttur album*." A fine male is yellow on the throat, slightly dirtied with a dark grey, which condenses to a near approach to black on the chin. The nostrils are covered by a yellow patch; but this is not noted in the description. A young male, shot on the 22nd December, has all the chin, throat, and chest grey, and shows traces of rufous on the flanks, vent, under tail-coverts underneath, and on the wing, secondaries, and cheeks above. It wants also the yellow nostril-patch. The female (unlike those of all the species known to me in Fiji, which are rufous) is also yellow below, the grey of the throat and chin being tinged with the same, no nostril-patch.

This bird is not uncommon in Samoa, and, in addition to the sexual difference noted before, is dissimilar to any *Pachycephala* I have yet seen, in its choice of locality, and want of voice. Our Fijian birds, (as also *P. jacquinoti* of Vavau), never approach cultivation, but keep to the genuine forest; the Samoan species, on the contrary, comes down to the cocoa-nut groves and native gardens, and is a quiet bird, the others being constantly on the move, uttering their loud calls.

16. PACHYCEPHALA ALBIFRONS, Peale.

This bird did not occur to me; nor has Mr. Whitmee recognized it; indeed, in *epistola*, he entirely doubts the habitat.

I should here correct an error I have fallen into in my "Notes on
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Fijian birds" (P. Z. S. 1875). The description under the head of *P. græffei* (p. 433) applies to *P. icteroides*; and that under *P. vitiensis* should be coupled with the latter part of *P. torquata*, under the head of "*P. intermedia*, Layard, sp. nov."

P. icteroides, Peale, differs from *P. græffei* in being of a much lighter yellow (the other is orange), and in having the nostril-spot much fainter; indeed in some it is altogether wanting. The female shows still greater differences: that of the first is deep rufous (almost chestnut); of the latter, brown with grey-mottled throat and pale buff underparts.

This species is said to occur in Samoa (Orn. Centr.-Pol. p. 76); and a native name, "*Vasavasa*," is given for it. This, however, is the name applied to the species before alluded to by me; and, as I have already stated, only one species is known to us from Samoa.

P. græffei, Hartl., is, as far as I yet know, confined to the neighbourhood of Bua, on Vanua Levu; and a single female has reached me from Rambi Island, to the north of Tavuni.

P. intermedia, Layard, is intermediate between my *P. torquata* and *P. icteroides*, Peale. It is light-coloured, like the latter, and has only a very narrow black collar. It has been killed on Ovalau, and on the big island of Viti Levu opposite Ovalau.

P. vitiensis, G. R. Gray, ♂, has also a narrow black collar, but may at once be distinguished from all the others by the pure white throat and chin. The female is reddish brown below; cheeks chestnut; top of head brown, back tinged with green; quills brown edged with rufous. As yet it has only occurred to me from Kandavu, the southernmost island of the Fijian group.

17. LALAGE TERAT, Bodd.

. Very common in Samoa, feeding much on the ground in the gardens attached to the European houses, as well as the native plantations. This habit I never observed in the Fijian bird, which appears to me less highly coloured than the Samoan. In December there were lots of young ones about, being fed by their parents. A most interesting specimen in this stage occurred to me: it is white beneath, with confused wavy grey bars, above pale brown, each feather being edged and tipped with white. Bill bright yellow.

18. APLONIS BREVIROSTRIS, Peale.

Common throughout the island of Samoa. Feeds much on a small dark purple berry that grows in dense clusters on a fair-sized tree. These birds decompose very quickly; I was always obliged to skin them the first on my return home, or all the vent-feathers came off.

19. STURNOIDES ATRIFUSCA, Peale.

It is singular this fine Starling should be confined to the Navigators' and not found in the Friendly Islands or Fiji. It was the first bird I saw on landing at Upolu, and involuntarily I exclaimed a "*Spreo!*" so exactly did its appearance, and flight, remind me of the South-

African *Lamprotornis bicolor*! It often goes in little flocks, and feeds much on the same trees frequented by the preceding, and also on a larger berry much patronized by the "Green Doves" (*Ptilonopus*). It also devours insects, and is subject to the same rapid decay as *A. brevirostris*.

20. ERYTHRURA CYANOVIRENS, Peale.

I obtained this pretty little Finch among the cotton-plants; but it was rare. It feeds on minute seeds. The young bird is furnished with small caruncles at the base of the bill, and has been made into a new genus by Drs. Finsch and Hartlaub, under the name of *Lobiospiza notabilis* (P. Z. S. 1870, p. 817). The young of the Fijian bird (*E. pealei*, Hartl.) possesses similar appendages. My son has just procured it at Suva, on Viti Levu; and we got it in some plenty at Ngila, on Tavuni, in the forest, feeding on high trees bearing berries.

21. PTILONOPUS PEROUSEI, Peale.

On one tree (a species of *Ficus*) in the forest at the back of Upolu, I saw at least thirty pairs of this lovely little Dove, in all stages of plumage, some of which I obtained.

22. PTILONOPUS APICALIS, Bp.

Mr. Whitmee (*in epistola*) informs me that the bird designated by this name is nothing more than the female of the preceding. Drs. Finsch and Hartlaub also, in their 'Ornithologie,' place a mark of doubt (?) before it. Great therefore was my astonishment when a live bird was brought on board H.M.S. 'Nymphe,' which I at once detected was quite distinct from our Fijian bird, and agreed very well with the description in the 'Ornithologie' of *P. apicalis*. Subsequently I obtained the loan of the 'Journal des Mus. Godeffroy.' In Heft 1, Tafel 7. No. 2 professes to be a figure of *P. fasciatus*, but has evidently been taken from a Samoan bird, and consequently represents *P. apicalis*. The deep orange of the vent and under tail-coverts, (so different from the pale yellow of the Fijian *P. fasciatus*), is well shown, as is also the bright yellow tip to the tail. This in *P. fasciatus* is dull grey, and does not extend to the end, the extreme tip being green. The chestnut on the abdomen (*entirely wanting in the Fijian bird*) is hardly dark enough, or bright enough; and the black indistinct line which exists at the superior edge of the same is not given; nor is the pale yellow patch from the chin along the centre of the throat. The magenta colour of the head is not dark enough; but this is clearly a mistake of the colorist. Another marked difference remains to be noted, the lovely *blue-green tips* to the wing-secondaries of *P. fasciatus* are changed in the Samoan bird to a still more lovely bright lilac! and the blue-black patch on the abdomen of the former is changed into an exquisite dark magenta. I now fancy the figure, pl. xi. of the 'Ornithologie,' must have been taken from a Samoan bird (see *antè*, p. 436).

I found *P. apicalis* abundant, feeding on various wild berries,

some even on the low cotton-bushes, the voice a pleasing melancholy rolling coo, like that of its Fijian congener. Many young birds, assuming the magenta head, were obtained; the females are not so brightly coloured as the males, especially on the under tail-coverts; very young birds have the whole of the underparts "scaly" (maillé) with yellow edges to their green feathers; the wing-feathers are also broadly edged and tipped with fine yellow. They show no trace of the V-shaped termination of the breast-feathers, one of the characteristics of the genus; nor is the apical termination of the first primary so attenuated.

23. *COLUMBA VITIENSIS*, Quoy.

A mutilated specimen brought me by a native appeared to be similar to our Fijian bird; and Mr. Whitmee informed me that he believed

24. *COLUMBA CASTANEICEPS*, Peale,
to be founded on the young of this species. They are not common.

25. *CARPOPHAGA PACIFICA*, Gm.

Very abundant, and the sexual organs and knob on the bill of the male much developed in December.

26. *PHLOGENAS STAIRI*, Gray.

Rare; only one specimen fell under my notice. Mr. Krause (Messrs. Godeffroy's collector) told me they had periodical migrations, and were sometimes plentiful. This bird is said to nest on the ground.

27. *DIDUNCULUS STRIGIROSTRIS*, Jard.

I did not myself see this bird in its haunts; but one was shot not far from where I happened to be, and I had the pleasure of skinning it. I had a native out in search of these birds for three days; but he failed to obtain any.

28. *MEGAPODIUS STAIRI*, Gray.

Mr. Whitmee and Mr. Krause both assured me no Megapode exists in the Navigators' Islands. Mr. Whitmee affirmed that the bird on which the species was founded was brought from Ninafoo by the Rev. W. Stair, and transmitted to England among some Samoan skins; hence the mistake. When I recollect that my late old friend Mr. G. R. Gray fathered on me the habitat of Ceylon for *Larus hemprichii*, because I gave the British Museum specimens shot at Aden on my way from the former place (among a number of Ceylonese birds), I don't wonder at the mistake!

29. *RALLUS PECTORALIS*, Less.

Very abundant, running about wet places like rats, and preferring to trust for safety to their heels rather than their wings.

30. ORTYGOMETRA QUADRISTRIGATA, Horsf.

31. *O. TABUENSIS*, Gm.

Neither of these birds occurred to me ; but I heard that the latter was not uncommon. The former has been obtained in some abundance in the interior of Viti Levu, where it seems to displace the smaller *O. tabuensis*. Eggs said to be of this species are pale drab colour, profusely covered with reddish-brown ill-defined minute marks ; axis 1" 2"', diam. 11'''. Six in one nest.

32. PORPHYRIO VITIENSIS, Peale.

How the mistake could have occurred of identifying the Samoan with the Indian bird, I cannot conceive. A comparison of the two must instantly dispel the illusion. This Gallinule is very common here as in Fiji and Tonga.

33. LIMOSA UROPYGIALIS, Gould.

Generally distributed, with the next species, along the sea-coast ; but I could not hear of its being found in the breeding-plumage.

34. ACTITIS INCANA, Gm.

Not very plentiful where I was, but always obtainable at low tide.

35. CHARADRIUS FULVUS, Gm.

Very common, and tame, feeding on the grassy paddocks close up to the houses.

36. STREPSILAS INTERPRES, L., non vidi.

37. ARDEA SACRA, Gm.

Not common, but generally distributed.

38. ANAS SUPERCILIOSA, Gm.

Rare and local, being only found on the lakes in the mountains—old extinct craters, in fact.

39. STERNA BERGII, Licht.

Little or nothing appears to be known about the sea-fowl of this group. Drs. Finsch and Hartlaub do not enumerate one single Tern from here ! I recognized *S. bergii*.

40. STERNA MELANAUCHEN.

41. STERNA PANAYA.

42. ANOUS STOLIDUS.

43. ANOUS LEUCOCAPILLUS.

44. GYGIS ALBA, Sparrm.

Of these five Terns, the first I obtained in full breeding-dress and στοργή at Levuka in the end of January ; the second my son shot in some plenty on the reef opposite Levuka in November, in splendid plumage, the whole body being suffused with such a pink blush as the

loveliest woman in the world would covet for her cheek ; the fifth must also be added to the Fijian fauna, as it is found among the islands to windward. I had often, in my cruises, noticed a large "Noddy," but only obtained it lately on my return from Samoa, when one was thrown on board, off Vatoa (Turtle-Island), during a hurricane, into which I was unfortunate enough to stumble. But "it is an ill wind that blows nobody luck ;" it gave me *A. stolidus*, and very nearly a splendid specimen of *A. leucocapillus* ; so these two must now certainly be included in the Fijian lists.

45. *THALASSIDROMA LINEATA*, Peale.

I saw a small petrel off Upolima, which was doubtless this species ; also a large dark petrel which I fancied must be

46. *PROCELLARIA CÆRULEA*,
or what serves for it in these seas.

47. *PROCELLARIA* — ?

Just before my arrival a native had caught, in his workshop, a large Petrel, which he brought to Mr. Whitmee. I could not identify it, not having any descriptions ; it however reminded me of *P. macroptera*, Smith.

My Notes on Fijian Birds must here be amended. *P. cerulæa*, as described by Drs. Finsch and Hartlaub, is found breeding in the mountainous parts of several of the Fijiau Islands, even as far inland as the interior of Viti Levu. It sweeps the seas in storm or calm, in company with the next and another larger species of *Procellaria*, not yet obtained, probably No. 47. *Puffinus nugax* also breeds in the interior, both digging holes and living in "rookeries." I have obtained specimens of both, and can only say that *P. cerulæa* differs much from what we identified with *P. cærulea* at the Cape.

48. *PHAËTON RUBRICAUDA*, Bodd.

49. *PHAËTON ÆTHEREUS*, L.

50. *PHAËTON CANDIDUS*, Gray.

These three Tropic birds are found among the Navigators' Islands. The last builds in the forests of Samoa, selecting as a site for its nest the fork of a tree or of a huge perpendicular branch, so that it can enter at one side and avoid bending or damaging its long tail ! I used to watch the flocks going to their sleeping-quarters in the woods passing high overhead ; and we soon observed that great numbers of them were devoid of tails ; one I obtained proved to have moulted this appendage.

51. *DYSPORUS SULA*, L.

I saw "Gannets" about the Samoan seas, but not near enough to distinguish the species. This species is given as an inhabitant by Drs. Finsch and Hartlaub.

52. *TACHYPETES AQUILUS*, L.

Common in stormy weather.

Though the number of species is smaller in the Navigators' Islands than in Fiji, being 52 as compared with 98, the number of individuals is apparently far greater. I could any morning, within one mile of the town of Upolu, shoot twenty or thirty birds, of at least ten species, in the course of a couple of hours. Here in Fiji, in the best collecting-ground, we considered eighteen or twenty specimens a good day's work, from daylight till one or two o'clock; and we might perhaps have six species, if we were lucky!

We were in Samoa at the worst time of the year, the rainy season: all the birds were moulting; and the young of the last season had not assumed their full nuptial dress. Mr. Krause assured me I could have obtained double or treble the number in the fine season, especially when the *Erythrina* blossomed. Its flowers are a great attraction to insects, and consequently to most of the birds.

I fancy that there are still other species to be discovered in the group. Dr. Gräffe does not seem to have been an assiduous collector, or he could not have missed so many novelties in Fiji. Perhaps Mr. Kleinsmith, the present collector for Messrs. Godeffroy, may prove more industrious; he has already done good service by discovering the curious little *Lamprolia minor*, and procuring additional examples of my new species.

On the 12th of February I found myself in Tonga-Tabu; and as soon as I could spare time from my official work (the object of my visit) I took a stroll in the country to inspect the birds of that part of my consulate. Few and far between were they. The little *Collocalia*, as usual, thrust himself first into notice; and I eagerly scanned them as they glided by to detect *C. vanicorensis*, but in vain. Then the "Wattle-birds" (*Ptilotis*) claimed my attention; and I fear I shot more than I could skin, to look for one with a *white eye*; none showed that peculiarity. Then *Lalage terat* appeared on the scene in considerable numbers. I was surprised at this, as it is not included in Drs. Finsch and Hartlaub's list. The last bird I shot was *Aplonis tabuensis*: and the instant I picked it up I saw that our Fiji bird differed from it, and had been wrongly associated with it. If, then, none of the synonyms given to *A. tabuensis* can be traced to a Fijian-killed bird, I propose for our species the name of *A. vitiensis*; and the bird I have described from the island of Futuna being identical with the Tongan species, the name given to it by me must sink into another synonym of that already overburdened species.

To proceed symmetrically, however, I commence with

1. *HALIAETUS LEUCOGASTER*, Gm. (?)

A solitary specimen of this bird may have reached Tonga; but all my inquiries respecting Raptorial birds only elicited the fact that our two Fijian hawks occasionally visit the group, and are recognized as stragglers by the Tongans, who of course, knowing them well, call them "Fiji Hawks." Some of the white residents were also

aware of their occasional presence ; I therefore include them in the Tongan list, provisionally, with a mark of doubt.

2. ? *ASTUR CRUENTUS*, Gould.

3. ? *CIRCUS ASSIMILIS*, Jard.

Occasional visitants. This reminds me that a straggler has turned up in Fiji, and must be added to our list. It was shot on the Rewa by Mr. Storek, and has passed into the possession of Baron von Hügel, who, I believe, identifies it as *Falco lunatus*. I have not seen it.

4. *STRIX DELICATULA*, Gould.

The only resident bird of prey in this group. Common everywhere.

5. *PLATYCERCUS TABUENSIS*, Gml.

In answer to my inquiries after birds, I was always comforted with, "Ah! you should get the black parrot of Eooa!" and I confess my curiosity was greatly excited. However, as I was bound to Eooa on duty, I confidently expected to get it, and charged all my messmates in H.M.S. 'Nymphé' to shoot every parrot they could see!

This Eooa (or E-u-a) is a small island to the south of Tonga Tabu. It appears to me to be a mass of coral, metamorphosed, by the action of volcanic heat under great pressure, into crystallized limestone. It has then been raised to a considerable height (compared with Tonga Tabu its near neighbour) above the sea-level, and, having cracked in cooling, is traversed by numerous deep perpendicular fissures. In these flourish a luxuriant tropical vegetation, while the gently rising surface of the island itself is covered with rich grass, on which are depastured some ten or fifteen thousand sheep. As the forest has encroached in places on the pasture-land, the island, viewed from the higher levels, appears like a most beautiful park, and it has the reputation of being the "loveliest island in the South Seas."

I had to visit one of the stations ; so, arming myself with "Long Tom," and handing my large double "Westly Richards" to a native, I sallied out, determined to get a "black parrot" if possible. I also specially hired a native to go in search of them, and shoot nothing else.

In one of the deep fissures I heard the undoubted "ka ka" of a parrot, that sounded vastly like that of our Fijian bird ; so, while I kept watch for a flying shot, I sent the native down the perpendicular sides. Presently I heard below me the loud report of my big "ten-bore," followed by the native's shout of triumph ; and he shortly reappeared, bringing me my old friend *Platycercus tabuensis*.

Here, then, was a surprise! the "black" parrot turns out a dark maroon ; and here, on this speck of land, and *only on it*, appears a Fijian Parrot !! The more I think over it, the more I am convinced

that the bird has been introduced into Eooa *artificially*. I have already (Ibis, 1876) described the varieties of this species and *Pl. splendens*, Peale. It will be seen that *Pl. tabuensis* and its allies inhabit that part of Fiji to which the Tongans have long years ago had free access. They and the Samoans are specially partial to red feathers for trimming their fans, &c., and for this purpose keep our little *Lorius solitarius* in confinement, plucking it twice a year. I was told they fetched as high as 20 or 30 dollars a pair in Tonga, to which place, and to Samoa, they are conveyed by every canoe or vessel that leaves these islands. What more likely, then, that some Tongan (a chief probably) took with him the form of *P. tabuensis* found in Vanua Levu, and either purposely or accidentally let it loose in Eooa? It could never fly thither of its own accord; its powers are too limited; and not one representative of the genus is found anywhere among the islands. No! it must have been introduced*.

At Vavaw I heard of a "small parrot with two long feathers in its tail" which formerly existed in the group, but has become quite extinct.

6. *CORIPHILUS FRINGILLACEUS*, Gm.

This lovely little bird is very abundant on Eooa and Vavaw, but is rare on Tonga Tábu; at least so said the Missionaries. Native name "Kohanga."

7. *EUDYNAMIS TAITIENSIS*, Sparrm.

I could hear nothing of such a bird; but it probably exists there.

8. *HALCYON SACRA*, Gm.

9. *H. VENERATA*, Gm.

I shot a whole lot of Kingfishers to find *H. venerata*, but, I fear, without succeeding in my object. I however observed that the bills in the Tongan birds were shorter than ours, and that full-plumaged males never assumed the fine chestnut colours of our bird.

10. *COLLOCALIA VANICORENSIS*, Quoy.

11. *C. SPODIOPYGIA*, Peale.

The latter is very common; the former I could not detect.

12. *PTILOTTIS CARUNCULATA*, Gm.

The commonest bird in the group, native name "Fule-haio."

13. *TATARE LONGIROSTRIS*, Gm.

No such bird known to any one in the group, and no native name for it. Has it too become extinct?

14. *MONARCHA NIGRA*, Sparrm.

This bird has undoubtedly become extinct. Large sums have

* Cf. Selater, *suprà*, p. 308. = Ed.

been offered by Messrs. Godeffroy's collectors for the acquisition of a single specimen, but in vain! The *very* old natives say they remember the bird, and call it "Moho."

15. *PACHYCEPHALA JACQUINOTI*, Bp.

This fine Flycatcher is found only on Vavaw, and confines itself to the forest, wherein its loud call betrays its presence to the ear, though it seldom meets the sight, unless cautiously sought for. I could call them to me by imitating the note, and obtained three adult males, three young males, and three adult females. The assistant-surgeon, also, of the ship, who has begun collecting birds, obtained a pair of adult birds, male and female, the morning of our departure. Its call is not unlike that of *P. torquata*, ending with a short, snapping note. The females, unlike those of our Fijian *Pachycephalæ*, are clear yellow below, with a buff-coloured head, throat, and chest. They frequented the high timber as well as the undergrowth, searching for minute insects, at which they darted while at rest on the underside of leaves or branches; native name "Kho." As an addition to the fauna of Fiji, I give descriptions of the egg and nest of *P. torquata* obtained by Mr. Tempest in Taviuni.

Egg palish blue-green, densely spotted with large black spots, in the form of a ring, at the obtuse end, and sparsely over the rest of the surface. Axis $1''\ 2'''$, diam. $9'''$.

Nest, a coarse structure of rootlets, covered with dead leaves, fastened with spiders' webs, placed in a bush on a thin twig, and supported by a horizontal branch of dead wood, evidently placed for the purpose. External diam. $4''$, internal $2\frac{1}{2}''$; internal depth $2''$.

16. *LALAGE TERAT*, Bodd.

Sigivû of the natives. I obtained an egg of this bird from a little English lad on Eooa. It is pale blue, sparsely but generally spotted with dark purple-brown spots, rather large. Axis $1''\ 2'''$, diam. $9'''$.

17. *APLONIS TABUENSIS*, Gm.

As before stated the true *A. tabuensis* differs from our Fijian bird, which is much lighter below, with the white markings down the shaft of each feather much broader and more developed, and the light chestnut of the belly and under tail-coverts brighter and clearer; over the whole of the upper plumage likewise, especially on the head, there is a fine *coppery* glance, which, in the Tongan bird, is changed to an *iron* glance. It is not such a robust bird; and the bill is decidedly smaller. I propose for it the name of *A. vitiensis*. The Tongan bird is found on Futuna Island.

18. *PTILONOPUS PEROUSEI*, Peale.

A rare visitant to the Tonga group. I did not see it.

19. *PTILONOPUS PORPHYRACEUS*, Forst.

This "green dove" is not uncommon, and is decidedly inter-

mediate between our *P. fasciatus* and the Samoan *P. apicalis*. It has the orange under tail-coverts of the latter, but wants the dark chestnut marking on the abdomen, being here more like the former. A fine breeding male has the black abdominal patch shaded away into brilliant purple. The spots on the secondaries also resemble in colour those of *P. fasciatus*. A *Ptilonopus* from Futuna Island agrees precisely with this bird.

In habits it resembles its brethren, and is called by the natives "Kullu Kullu." A female in full breeding-plumage resembles the male, but is not so brilliantly coloured on the abdomen.

20. *CARPOPHAGA PACIFICA*, Gm.

Common throughout the group; native name "Oroobe."

21. *MEGAPODIUS BURNABYI*, Gray.

No Megapode is found in the group, according to the testimony of the whites, who, however, know the Ninafoo bird well.

22. *PORPHYRIO VITIENSIS*, Peale.

Though not given as an inhabitant of these islands by Drs. Finsch and Hartlaub, I obtained this species (or saw it) on Tongatabu, Eooa, and Vavaw.

23. *LIMOSA UROPYGIALIS*, Gould.

Was shot by our party, both on Eooa and Tongatabu.

24. *ACTITIS INCANA*, Gm.

Same as preceding.

25. *CHARADRIUS FULVUS*, Gm.

Very common, especially on the uplands of Eooa.

26. *STREPSILAS INTERPRES*, L.

Not mentioned by Drs. Finsch and Hartlaub, but very common. I saw a large flock of at least forty, showing all stages of plumage; one I shot was just assuming the nuptial dress.

27. *ARDEA SACRA*, Gm.

Very common, most of those shot were just assuming the full white plumage, a few blue feathers appearing here and there.

28. *ANAS SUPERCILIOSA*, Gm.

Common both on the sea-shore and in the lagoons.

29. *STERNA GRACILIS*, Gould.

Given by Drs. Finsch and Hartlaub as found in Tongatabu. The species we saw were:—

30. *STERNA BERGII*, Licht.

31. *STERNA MELANAUCHEN*, Temm. —

32. *STERNA PANAYA*, Gm.

These were all common in the harbour at Tongatabu, the last being in specially fine plumage.

33. *GYGIS ALBA*, Sparrm.

A few of these were killed on Tongatabu; but on arriving at Eooa I found the ravines full of them, and so tame that they would almost perch on the gun-barrel, if it was held out. The officers of the ship made the same observation on their tameness at a lagoon in Vavaw. They perch constantly on trees; but for what purpose I could not ascertain; the stomachs of six I shot were entirely empty. The lovely blue tints at the base of the bill fade soon after death.

34. *ANOUS STOLIDUS*, L.35. *ANOUS LEUCOCAPILLUS*, Gould.

The former I saw at sea, off the islands; the latter was common even in the harbour. Petrels were also seen.

36. *PHAËTON RUBRICAUDA*, Bodd.37. *PHAËTON ÆTHEREUS*, L.38. *PHAËTON CANDIDUS*, Gray.

All the *Phaëtontes* were observed about the islands. At Eooa I obtained an egg, said to be of the latter, which is called by the natives "Tavaki."

39. *DYSPORUS PISCATOR*, L.40. *DYSPORUS SULA*, L.41. *TACHYPETES AQUILUS*, L.

Gannets were seen from the ship when near land, but none obtained. Frigate-birds hovered over our mast-heads, and tempted Captain Suttie to two or three shots, in the hope of procuring me a specimen; but their small bodies, at the great altitude they always maintained, escaped the shot.

These seas, as a rule, are very destitute of birds. If any are seen, it is a sure indication that land is not far off. The "Frigates" and "Phaëtons" approach the ship, while the "Noddies," "Petrels," and "Puffins" keep at a respectful distance, and can only be identified through my faithful companions my binoculars. A little practice enables one to do this with tolerable certainty; there is sure to be some marked peculiarity by which, if the bird is once fairly identified, it can always afterwards be recognized.

Carefully made collections from each of the numerous small islands dotted over these seas would, I am convinced, exhibit some interesting facts in the distribution and variation of species. The volcanic islands especially would afford a fine field for scientific in-

vestigation, in connexion with the distribution of the Megapodes, as they seem to be confined, more or less, to them.

Captain Suttie informed me that on Savo (Solomon Islands) he found the sea-shore divided into "paddocks" by stone walls, having no enclosure at the back, which led into the bush. These belonged each to an individual, or a family; and no one poached on his neighbour's ground. The Megapodes came down to the beach to lay their eggs in the sand, merely scratching a hole like that of a rabbit, and leaving it open after them. All eggs found in these enclosures belonged to the owner of the plot of ground. The birds *made no nest, or mound, of any sort*. Captain Suttie took some eggs on board; and they hatched in a box in his cabin! They fed on minute insects which they found in the sand brought on board with them, which they turned over continually; when these failed they died.

I have to make the following additional emendations on my "Notes on Fijian Birds" (*antea*, p. 423 *et seq.*).

A new Parrakeet must be added to the list, *TRICHOGLOSSUS AUREOCINCTUS*, mihi, found in various places, chiefly Taviumi, Viti Levu, and Ovalau.

EUDYNAMIS TAITIENSIS, Sparrm.

My son and I obtained this Cuckoo on Wakaia, and saw several specimens, in the middle of September last.

HALCYON CASSINI, F. & H.

I cannot satisfy myself of the distinctness of this species from *H. sacra*. I do not think more than one form of *Halcyon* is found in Fiji; but they differ much at different ages; the sexes also differ.

PTILOTIS PROVOCATOR, Layard.

The egg is pale salmon-colour, generally speckled, but chiefly at the obtuse end, with largish spots of dark brown and indistinct purple. Axis 1", diam. $1\frac{1}{2}$ ".

TURDUS VANICORENSIS, Quoy et Gaim.,

has not been found in Fiji. We however, possess three true "Black-birds":—*T. bicolor*, Layard, from Kandavu; *T. vitiensis*, Layard, from Bua; and *T. tempesti*, Layard, from Taviumi. I expect others will turn up in Viti Levu.

ORTYGOMETRA QUADRISTRIGATA, Horsf.

Inhabits the mountainous interior of Viti Levu.

STREPSILAS INTERPRES, Linn.

Shot on Koro by my son.

STERNA MELANAUCHEN, Temm.

Several have been shot by my son, on the reef at Levuka.

PUFFINUS NUGAX (Solander).

PROCELLARIA CÆRULEA, Gm.

Both species breed in the mountainous parts of the islands; and my son obtained a specimen of the former, swimming on the Rewa river.

PHAËTON ÆTHEREUS, L.

PHAËTON RUBRICAUDA, Bodd.

PHAËTON CANDIDUS, Gray.

I have positively identified these three *Phaetontes* as inhabitants of these islands.

DIOMEDEA MELANOPHRYS.

Baron von Hügel testifies that he saw this bird within sight of Kandavu; it may therefore claim a place in our avifauna.

8. On some Anatomical Characters which bear upon the Major Divisions of the Passerine Birds.—Part I. By A. H. GARROD, M.A., F.Z.S., Prosector to the Society.

[Received May 17, 1876.]

(Plates XLVIII.—LIII.)

A special analysis of the peculiarities of structure presented by different Passerine birds can hardly be considered premature. Since the investigations of Nitzsch, Sundevall, Keyserling and Blasius, Johannes Müller, and Cabanis little of decided importance has been made out with reference to the distinguishing characters of the group or of its primary divisions, if we except the researches of Professors Huxley and Parker on the palate in the class Aves generally. A glance at the history of the Order will be the best introduction which I can offer to the facts which it is my desire upon the present occasion to bring before the Society.

Although the name "Passeres" was coined by Linnæus, that illustrious naturalist did not appreciate the unity of the group, his classification compelling him to include the Columbæ in the order, which was defined as having "rostrum conico-attenuatum," and *Paradisea*, *Corvus*, together with *Certhia* among the "Picæ," "rostro superne compresso convexo."

Cuvier, in 1798*, made a great step in advance by forming an order "Passeres" to include all those now so called, together with those non-swimming, non-wading, non-climbing, non-raptorial, non-gallinaceous birds in which there are not two toes of the foot retroverted.

Nitzsch† was the first to appreciate the true limits of the order, when in 1829 he grouped together the birds now termed PASSERES in a single section, entirely by themselves.

* Tableau Élémentaire, p. 199 *et seq.*

† Observationes de Avium arteriâ carotidæ communi.